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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/828,809	04/10/2001	Robert Terneu	31642-167413	8396

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PATENT PROSECUTION SERVICES
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WASHINGTON, DC 20036-2412

EXAMINER

MARKHAM, WESLEY D

ART UNIT	PAPER NUMBER
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1762

DATE MAILED: 04/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/828,809

Applicant(s)

TERNEU ET AL.

Examiner

Wesley D. Markham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 2/15/2005 (the supplemental amendment).
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 96-124 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 96-124 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☒ Certified copies of the priority documents have been received in Application No. 08/660,755.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>12/15/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Acknowledgement is made of the (supplemental) amendment filed by the applicant on 2/15/2005, in which Claims 29 – 95 (all pending claims) were canceled, and Claims 96 – 124 were added. **Claims 96 – 124** are currently pending in U.S. Application Serial No. 09/828,809, and an Office action on the merits follows.

Information Disclosure Statement

2. The IDS filed by the applicant on 12/15/2005 is acknowledged by the examiner, and the references listed thereon have been considered as indicated on the attached copy of the PTO-1449 form.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 96 – 124 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claims contain subject matter that was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

5. To begin, the examiner notes that new **Claims 96 – 124** are all drawn to a method of manufacturing a solar control glazing panel for the exterior façade of a building, the method comprising the steps of (1) pyrolytically forming a first coating layer on a soda-lime float glass substrate from reactants in the gaseous phase, the formation of the first coating layer being selected from (a) forming the first coating layer on a sheet of freshly formed soda-lime flat glass as it moves in a tunnel oven while it is still hot, and (b) forming the first coating layer inside a float tank on the top surface of a glass ribbon while the ribbon is floating on a bath of molten tin, and (2) forming a second coating layer on the soda-lime float glass substrate, the second coating layer comprising tin oxide doped with fluorine, wherein the first coating layer comprises tin and antimony oxides having a particular Sb/Sn molar ratio (i.e., 0.01 to 0.5, or 0.03 to 0.15). The claimed method is required to produce a glazing panel having a solar factor (FS) or less than 70%. After thoroughly reviewing the originally filed application, the examiner notes that the general method discussed above is supported by the aforementioned application. However, the following limitations, in the context of the claimed invention (i.e., the claimed method which results in a glazing panel having at least two coating layers – a mixed Sb and Sn oxide layer and a fluorine doped Sn oxide layer), are not supported (either explicitly, implicitly, or inherently) in the application as originally filed:

- The glazing panel has a solar energy transmission (TE) measured according to the CIE standard of at least 27% (Claims 96, 106, 118, and 120).

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- The glazing panel has a solar energy transmission (TE) ranging from 27 to 54.3% (Claims 97, 107, 119, and 121).
 - The glazing panel has a solar energy transmission (TE) ranging from 43.0 to 47.2% (Claims 105 and 124).
 - The glazing panel has a solar factor (FS) of 54.7 to 57.7% (Claims 105 and 124).
 - The glazing panel has a luminous transmittance (TL) of at least 49.2% (Claims 98, 100, 108, 110, and 116).
 - The glazing panel has a luminous transmittance (TL) of 49.2 to 70.2% (Claims 99, 101, 109, 111, and 117).
 - The glazing panel has a luminous transmittance (TL) of 40 to 65% (Claims 105 and 124).
 - The selectivity of the glazing panel (TL/FS) is 1.11 and more (Claim 124).
 - The method further comprises forming at least one intermediate layer (between the glass substrate and the first coating layer), wherein the intermediate layer consists essentially of silicon and oxygen (e.g., SiO or SiO₂) (Claims 102, 103, 105, 112, 113, 116, and 124).
6. The applicant has not discussed where the aforementioned limitations find support in the originally filed specification. It appears to the examiner that the applicant is relying on the examples in the specification (see Tables 1.1, 1.2 through 1.5, 2A, and 2B) of glazing panels having various TL, TE, FS, and TL/FS values as an original disclosure that sufficiently supports the presently claimed ranges. However,

these examples, even when taken in totality, do not constitute an original disclosure of the ranges of TL, TE, FS, and TL/FS values as recited in, and in the context of, the newly added claims. For example, several of the claimed ranges are open-ended (TE of at least 27%, TL of at least 49.2%, and selectivity of 1.11 and above). In other words, the claimed ranges literally read a TE value approaching 100%, a TL value approaching 100%, and an infinite selectivity. After reviewing each of the examples presented by the applicant's specification, the examiner notes that no example shows a glazing panel with a TE value approaching 100%, a TL value approaching 100%, and an infinite selectivity. Thus, the claims as presently presented literally read on embodiments not originally disclosed or contemplated by the applicant. The examiner maintains that the original written description does not provide adequate written support (either explicitly, implicitly, or inherently) for the ranges of optical property values recited in the claims. Please see *In re Wertheim* (191 USPQ 90 (CCPA 1976)), which held that a new claim limitation drawn to an open-ended range (i.e., a situation analogous to the present situation) does not meet the written description requirement since it reads literally on embodiments not originally disclosed. It is also worthy of note that various glazing panels that appear to be part of the applicant's originally disclosed invention have TL, TE, FS, and TL/FS values outside of the presently claimed ranges (see Tables 1.1 – 1.5). This further supports the examiner's position that a glazing panel having the specific range(s) of TL, TE, FS, and TL/FS values was not originally contemplated by the applicant as part of the invention. Additionally and importantly, please note that the examples in the

specification (see Tables 1.1, 1.2 through 1.5, 2A, and 2B) of glazing panels having various TL, TE, FS, and TL/FS values that fall within the applicant's claimed range(s) do not correspond to the invention claimed in Claims 96 – 124. Specifically, the presently claimed method results in a glazing panel having at least two coating layers – a mixed Sb and Sn oxide layer and a fluorine doped Sn oxide layer. None of the examples in the applicant's specification include forming a fluorine doped Sn oxide layer in combination with a mixed Sb and Sn oxide layer. As such, the examples do not provide support for the TL, TE, FS, and TL/FS values in the context of the method of Claims 96 – 124. Additionally and regarding the "intermediate layer" limitations, the application as originally filed does have support for (1) an intermediate layer (e.g., consisting essentially of silicon and oxygen) below a tin/antimony oxide coating layer or (2) a fluorine-doped tin oxide layer on the tin/antimony oxide coating layer individually, but not for both an intermediate layer below a tin/antimony oxide coating layer and a fluorine-doped tin oxide layer on the tin/antimony oxide in a single embodiment. Since this is the case, the specification as originally filed clearly does not have support for the claimed characteristics (i.e., solar factor, luminous transmittance, solar energy transmission, and selectivity) of a glazing panel having all of the aforementioned layers (i.e., the intermediate layer, the tin/antimony oxide coating layer, and the fluorine-doped tin oxide layer) as required by Claims 102, 103, 105, 112, 113, and 116 - 124. For all of the above reasons, the subject matter of Claims 96 – 124 lacks original written description under 35 U.S.C. 112, first paragraph (e.g., because one skilled in the art would not recognize

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an original written description of the claimed invention when viewed as a whole, specifically the claimed combination of layers (e.g., a specific Sb/Sn oxide coating, a fluorine doped tin oxide coating, and (optionally) an intermediate layer) and glazing panel characteristics (i.e., solar factor, luminous transmittance, solar energy transmittance, and/or selectivity)).

7. **Claims 96 – 124** are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.
8. Specifically, and as discussed above, new **Claims 96 – 124** are all drawn to a method of manufacturing a solar control glazing panel for the exterior façade of a building, the method comprising the steps of (1) pyrolytically forming a first coating layer on a soda-lime float glass substrate from reactants in the gaseous phase, the formation of the first coating layer being selected from (a) forming the first coating layer on a sheet of freshly formed soda-lime flat glass as it moves in a tunnel oven while it is still hot, and (b) forming the first coating layer inside a float tank on the top surface of a glass ribbon while the ribbon is floating on a bath of molten tin, and (2) forming a second coating layer on the soda-lime float glass substrate, the second coating layer comprising tin oxide doped with fluorine, wherein the first coating layer comprises tin and antimony oxides having a particular Sb/Sn molar ratio (i.e., 0.01 to 0.5, or 0.03 to 0.15). The claimed method is required to produce a glazing panel

having a solar factor (FS) or less than 70%, as well as various other optical characteristics (e.g., a TE value of at least 27%, particularly 27 – 54.3%, more particularly 43.0 – 47.2%; a FS value of 54.7 – 57.7%; a TL value of at least 49.2%, particularly 49.2% to 70.2%, particularly 40 – 65%; and a selectivity of 1.11 and more), depending on the specific claim. One skilled in the art of coating glass would not be able to carry-out the applicant's claimed invention (i.e., the applicant's claimed method) without undue experimentation because there is no example, embodiment, or guidance shown or discussed in the specification of the instant application that pertains to pyrolytically coating glass with a tin/antimony oxide coating layer (on an optional intermediate coating layer) and at least one additional coating layer comprised of fluorine-doped tin oxide (i.e., 2 or 3 different layers) to produce a glazing panel having the specific combination of solar factor (i.e., less than 70%) and other optical properties (i.e., the range of TE, TL, and/or selectivity values) claimed by the applicant. As such, one skilled in the art would not know how to obtain the combination of claimed characteristics (solar factor in combination with luminous transmittance, solar energy transmittance, and/or selectivity) of the coated, 2-or-more layer, glazing panel. For example, how does the thickness of the intermediate layer and/or the fluorine-doped tin oxide layer influence the FS, TE, TL, and selectivity of the glazing panel? How does one choose an appropriate layer thickness value in combination with the claimed tin/antimony oxide coating layer thickness? Does the amount of fluorine in the fluorine-doped tin oxide layer influence the FS, TE, TL, and selectivity of the glazing panel? If so, how is this balanced into

the equation when forming the claimed glazing panel? While the examiner generally agrees that one skilled in the art would be enabled to deposit the aforementioned two or three layers in sequence on a glass substrate, an undue amount of experimentation would be required to do so in a manner sufficient to obtain the claimed characteristics (FS in combination with TE, TL, and/or selectivity) of the coated, 2-or-more layer, glazing panel. Without some guidance regarding the issues discussed by the examiner above, one skilled in the art would not be able to make the claimed glazing panel without undue experimentation. The examiner's position is supported by the art of record (McCurdy et al. (USPN 5,780,149), Col.1, lines 23 – 41), which teaches that the attributes of a coated glass substrate are dependent on the specific coatings applied to the substrate (e.g., the composition and thickness of the coating(s)). However, adjustments to enhance one property can adversely impact other properties of the coated glass, and obtaining desired spectral properties is difficult when trying to combine specific energy attenuation and light transmittance properties.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Johnson (USPN 3,149,989) teaches depositing multiple layers of antimony-doped tin oxide, each layer having a different antimony concentration, on a window to achieve desirable optical / solar properties. McCurdy et al. (USPN 6,124,026) teaches sequentially depositing a silicon oxide intermediate layer, an antimony/tin oxide

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layer, and a fluorine doped tin oxide layer on float glass substrate by pyrolysis / CVD while maintaining a high visible light transmittance in the production of an architectural glazing. Guiselin et al. (USPN 5,965,246) teaches depositing a stack of layers including tin oxide and fluorine doped tin oxide to produce a glazing panel. McKown et al. (USPN 6,218,018) teaches sequentially depositing an antimony/tin oxide layer and a fluorine doped tin oxide layer on a glass substrate by pyrolysis / CVD while maintaining a high visible light transmittance in the production of improved solar control coated glass.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wesley D. Markham whose telephone number is (571)

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272-1422. The examiner can normally be reached on Monday - Friday, 8:00 AM to 4:30 PM.

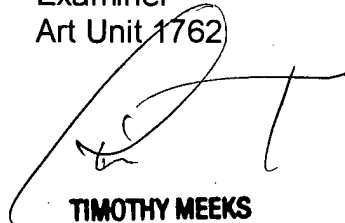
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



WDM

Wesley D Markham
Examiner
Art Unit 1762



TIMOTHY MEEKS
SUPERVISORY PATENT EXAMINER